1. A high performance, fast-response, multi-sensor pressure probe for measuring velocity and pressure measurements, said probe comprising

a small probe tip,

a plurality of holes in said probe tip,

a plurality of pressure transducers embedded in said holes near the tip,

a plurality of sensors embedded in said tip adjacent said transducers,

so as to give a quick response and high performance due to elimination of lag between the sensor reading and the transducer response.

2. A probe as in claim 1 wherein there are five sensors and five transducers in said tip.

3. A probe as in claim 1 wherein there are seven sensors and seven transducers in said tip.

4. A probe as in claim 1 wherein said probe tip is spherical and there are holes all around the sphere with sensors therein so that said probe is omni-directional.

5. A probe as in claim 1 wherein said sensors have a high frequency response and are located in holes near the tip of the probe so as to minimize hole channel

length and thus the time lag induced by the volume from the probe surface to the sensor diaphragm as well as moving the Helmholtz resonance frequency well above the transducer frequency.

6. A probe as in claim 1 wherein said tip is hemispherical and has five holes therein with five sensors mounted in said holes and having a frequency response of at least 20kHz.

7. A probe as in claim 6 wherein the probe can operate at temperatures as high as 400 degrees Fahreheit.

8. A probe as in claim 1 wherein the probe tip is 1.5mm in diameter.

9. A probe as in claim 1 wherein the transducers are no more than 2 inches from the sensors.

10. A flow control multi-sensor probe for flow control experiments, said probe comprising,

a probe body having a probe tip,

holes in said probe tip,

sensors mounted in said holes in said tip,

a corresponding number of pressure transducers with a range of plus or minus 2 PSIG installed in the probe body,

said transducers being plus or minus 2 inches from said sensors.

11. A probe as in claim 10 having a self-contained computer, said computer adapted to gain voltage from the transducers and converts it to velocity components.

12. A MEMS probe unit for high-performance, fast-response, multi-sensor pressure probe of miniature size for velocity and pressure measurements in unsteady and turbulent flowfields, said probe comprising

a MEMS sensor array with five pressure sensors,
said MEMS pressure sensors being micromachined and containing bossed diaphragm structures for improved sensitivity,
said sensors being set in a cross pattern.

13. An omni-directional three component flow velocity measurement pressure probe with fast dynamic response, said probe comprising

a spherical tip,
a plurality of sensors mounted on said tip by flexible skin technology,
said sensors being equidistant from one another.

14. A probe as in claim 13 wherein said sensors are fabricated on thin flexible strips on the surface of said spherical tip with electrical leads connected to transducers through the body of said tip.

15. A multi-hole probe for measuring flow velocity, said probe comprising

a probe tip,

holes in said probe tip,

a plurality of pressure sensors located in said tip in the immediate vicinity of said holes and in communication with said holes so that said sensors produce an almost instantaneous reading of the pressure in said holes from said flow.

16. A multi-hole probe as in claim 15 wherein said tip is spherical.

17. A multi-hole probe as in claim 15 wherein said holes constitute a MEMS sensor array and said sensors including bossed diaphragm structures for improved sensitivity.

18. The process of calculating velocity magnitude, the flow angles and the static pressure of a given flow, said process comprising:

a) calculating the geometric location for each port

b) calculating the steady probe calculation.

19. The process of claim 18 only calculating the unsteady probe calculation.

20. The process of claim 19 and including additional calculations.